

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,212	08/30/2001	Masao Imai	14895	8893
23389	7590	08/24/2004	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA GARDEN CITY, NY 11530			TRAN, TRANG U	
			ART UNIT	PAPER NUMBER
			2614	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/943,212	<b>Applicant(s)</b> IMAI, MASAO	
	<b>Examiner</b> Trang U. Tran	<b>Art Unit</b> 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5,13,14,17,18,27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) 2-4,6-12,15,16 and 19-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,13,14,17,18,27 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/30/01</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, 13-14 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irwin (US Patent no. 5,784,038) in view of Marshall (US Patent No. 6,738,104 B2).

In considering claim 1, Irwin discloses all the claimed subject matter, note 1) the claimed illuminating a display device having a matrix of pixels, with adjacent four pixels as a unit, with illuminating lights including a red illuminating light, a green illuminating light, a blue illuminating light, and an achromatic illuminating light, such that the illuminating lights applied to the pixels in each unit have different colors from each other and the colors of the illuminating lights are switched in each field period is met by active matrix color LCD 10 which has pixel 12, in the display area 14, to be comprised of 4 subpixels 11, 13, 15, 17 and three subpixels 11, 13, 17 are coated with colored RGB (Figs. 1a-1c, col. 1, lines 19-48), 2) the claimed generating a red video signal, a green video signal, a blue video signal, and an achromatic video signal from a color video signal so as to correspond to the colors of the illuminating lights applied to the pixels in each unit is met by the display controller 52 and the color wheel 40 (Fig. 3, col. 4, lines

Art Unit: 2614

20-43), and 3) the claimed energizing said display device with the generated video signals to display a color video picture thereon is met by the projection lenses 34 and 36, for projecting onto a display screen 32, color images optically transmitted to the projection lenses 34 and 36, by the backlighted monochrome active matrix LCD 46 through the color wheel assembly and display on the screen 32 (Fig. 3, col. 4, lines 20-43).

However, Irwin explicitly does not disclose the claimed an achromatic illuminating light.

Marshall teaches that Fig. 13 is a block diagram of a single micromirror projection display system, comprised of a light source 130, a first condenser lens 131, a rotating color wheel (with RGB-RGB or RGBW-RGBW filter sequence) 132 and index mark(s) 133, a second condenser lens 136, a single micromirror 137 (Figs. 11 and 13, col. 11, lines 1-14 and col. 12, lines 5-39).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate an achromatic illuminating light as taught by Marshall into Irwin's system in order to adjust the brightness and saturation of the display pixels.

Claim 5 is rejected for the same reason as discussed in claim 1.

In considering claim 13, Irwin discloses all the claimed subject matter, note 1) the claimed a display device having a matrix of pixels for applying illuminating light in association with every four pixels of said matrix is met by is met by active matrix color LCD 10 which has pixel 12, in the display area 14, to be comprised of 4 subpixels 11, 13, 15, 17 and three subpixels 11, 13, 17 are coated with colored RGB (Figs. 1a-1c, col.

1, lines 19-48), 2) the claimed color switching illumination means for applying illuminating lights including a red illuminating light, a green illuminating light, a blue illuminating light, and an achromatic illuminating light at different angles to said condensing lens, switching the colors the illuminating lights in each field period, such that, with adjacent four pixels as a unit, the illuminating lights applied to the pixels in each unit have different colors from each other, and switching the colors of the illuminating lights in each field period is met by is met by the display controller 52 and the color wheel 40 (Fig. 3, col. 4, lines 20-43), and 3) the claimed video signal processing means for generating a red video signal, a green video signal, a blue video signal, and an achromatic video signal from a color video signal so as to correspond to the colors of the illuminating lights applied to the pixels in each unit, and energizing said display device with the generated video signals to display a color video picture thereon is met by the projection lenses 34 and 36, for projecting onto a display screen 32, color images optically transmitted to the projection lenses 34 and 36, by the backlighted monochrome active matrix LCD 46 through the color wheel assembly and display on the screen 32 (Fig. 3, col. 4, lines 20-43).

However, Irwin explicitly does not disclose the claimed a display device having a condensing lens disposed on a surface.

Marshall teaches that Fig. 13 is a block diagram of a single micromirror projection display system, comprised of a light source 130, a first condenser lens 131, a rotating color wheel (with RGB-RGB or RGBW-RGBW filter sequence) 132 and index mark(s)

133, a second condenser lens 136, a single micromirror 137 (Fig. 13, col. 12, lines 5-39).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the condenser lens as taught by Marshall into Irwin's system in order to focus the illuminating light onto the display screen.

In considering claim 14, the claimed further comprising the step of: projecting means for projecting the color video picture displayed on said display device is met by the projection lenses 34 and 36, for projecting onto a display screen 32, color images optically transmitted to the projection lenses 34 and 36, by the backlighted monochrome active matrix LCD 46 through the color wheel assembly and display on the screen 32 (Fig. 3, col. 4, lines 20-43 of Irwin).

In considering claim 27, Irwin discloses all the claimed subject matter, note 1) the claimed wherein the pixels in each unit are arranged in a square matrix is met by active matrix color LCD 10 which has pixel 12, in the display area 14, to be comprised of 4 subpixels 11, 13, 15, 17 and three subpixels 11, 13, 17 are coated with colored RGB (Figs. 1a-1c, col. 1, lines 19-48). However, the combination of Irwin and Marshall explicitly do not disclose the claimed wherein the pixels in each unit are arranged in a square matrix with green and achromatic pixels positioned diagonally opposite in relation to each other. It would have been obvious to one ordinary skill in the art at the time of the invention to incorporate a square matrix with green and achromatic pixels positioned diagonally opposite in relation to each other into the combination of Irwin and Marshall's since it merely selecting available subpixels.

Claim 28 is rejected for the same reason as discussed in claim 27.

3. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irwin (US Patent no. 5,784,038) in view of Marshall (US Patent No. 6,738,104 B2), and further in view of Takeuchi et al. (US Patent No. 6,621,488 B1).

In considering claim 17, the combination of Irwin and Marshall disclose all the limitations of the instant invention as discussed in claim 13 above, except for providing the claimed wherein said color switching illumination means has a collimator lens associated with four sets of four regions for emitting said red illuminating light, said green illuminating light, said blue illuminating light, and said achromatic illuminating light, respectively, said color switching illumination means being arranged to energize either one at a time of said four regions to emit the illuminating light in each field period, said regions being arranged in a matrix. Takeuchi et al teach that the illumination device 20 has three light sources 22R, 22G, and 22B; two dichroic mirrors 24 and 26, and a collimating lens 28, the three light sources 22R, 22G, and 22B are selectively switched on one at a time, each emitting illumination light of one of three colors (RGB) (Fig. 1, col. 3, lines 20-51). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the collimating lens as taught by Takeuchi et al into the combination of Irwin and Marshall's system in order to make the illumination light incident on the liquid-crystal panel more sufficiently parallel.

Claim 18 is rejected for the same reason as discussed in claim 17.

### **Conclusion**



4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Morgan et al. (US Patent No. 6,453,067 B1) disclose brightness gain using white segment with hue and gain correction.

Kanai et al. (US Patent No. 6,034,666) disclose system and method for displaying a color picture.

Suntola (US Patent No. 4,907,862) discloses method for generating electronically controllable color elements and color display based on the method.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (703) 305-0090. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT  
August 21, 2004

  
TRANG TRAN  
PATENT EXAMINER